

REMARKS

This Amendment is fully responsive to the non-final Office Action dated July 28, 2008, issued in connection with the above-identified application. Claims 18-34 are were pending in the present application. With this Amendment, claims 18-30 and 32 have been amended. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

To facilitate the Examiner's reconsideration of the present application, the Applicants have provided amendments to the specification and the abstract. The changes to the specification and the abstract include minor editorial and clarifying changes. Replacement paragraphs and an replacement abstract are enclosed, which indicate the changes made to the original specification and abstract. No new matter has been introduced by the amendments made to the specification and the abstract.

At the outset, the Applicants thank Examiner Monikang for granting the telephone interview conducted with the Applicants' representative on October 15, 2008. During the interview, the distinguishable features between the present invention (as recited in claim 18) and the Ohashi reference were discussed in detail.

For example, it was noted that Ohashi fails to disclose or suggest two magnetic circuits, as recited in claim 18. Additionally, it was noted that Ohashi clearly fails to disclose or suggest a magnetic member that is disposed in a gap between the first magnet of a first magnetic circuit and second magnet of a second magnetic circuit, as recited in claim 18.

At the conclusion of the interview, the Examiner acknowledged the differences between the present invention (as recited in claim 18) and the Ohashi reference. However, the Examiner did suggest slightly amending claim 18 to clarify the different "gaps" recited in the claim, and help to distinguish the features of the present invention from Ohashi.

In the Office Action, claims 18-28 and 35 have been rejected under 35 U.S.C. 102(e) as being anticipated by Ohashi (U.S. Patent No. 6,904,158, hereafter "Ohashi"). The Applicants have amended independent claim 18 to help clarify the scope of the claim, as suggested by the Examiner. The Applicants maintain that the cited prior art fails to disclose or suggest all the features recited in independent claim 18. Independent claim 18 recites the following features:

“[a] speaker device comprising:

- a housing having an opening portion;

- a vibration system member vibrating to generate sound;

- a support system member connected to said housing and for supporting said vibration system member in a manner which allows said vibration system member to vibrate;

- a first magnetic circuit disposed inside said housing and having a first magnet provided on a surface thereof facing the opening portion, and a first yoke provided lateral to the first magnet; and

- a second magnetic circuit having a second magnet disposed facing the first magnet of said first magnetic circuit via a first magnetic gap, and a second yoke provided lateral to the second magnet,

- wherein a second magnetic gap is formed in at least one an interval between a side surface of the first magnet and the first yoke in said first magnetic circuit and a third magnetic gap is formed in at least one interval between a side surface of the second magnet and the second yoke in said second magnetic circuit,

- said vibration system member includes:

- a first voice coil;

- a first voice coil bobbin provided to dispose the first voice coil in the second magnetic gap; and

- a magnetic member made of a magnetic material other than a magnet, and connected directly or indirectly to the first voice coil bobbin so that the magnetic member is disposed in the first magnetic gap between the first magnet of said first magnetic circuit and the second magnet of said second magnetic circuit.”

The features noted above in independent claim 18 are fully supported by the Applicants’ disclosure (see e.g., Fig. 1).

The present invention, as recited in independent claim 18, is directed to a speaker device that includes two magnetic circuits. That is, a first magnetic circuit that has a first magnet and a first yoke, and a second magnetic circuit that has a second magnet and a second yoke. Additionally, a magnetic member is included as part of a vibration system, wherein the magnetic

member is disposed in a gap between the first magnet of the first magnetic circuit and the second magnet of second magnetic circuit.

A force is applied to the magnetic member in a direction in which a vibration displacement of the magnetic member is increased due to a magnetic attraction force of the first magnet and the second magnet. As a result, an acoustic stiffness inside the housing of the speaker device is relaxed, and the bandwidth in which a low-frequency sound can be reproduced is expanded. Based on these features, the magnetic flux of the magnet can be effectively utilized, and the size of the speaker device (especially, the length of the speaker device in the direction in which the diaphragm vibrates) can be reduced.

In the Office Action, the Examiner relies on Ohashi for disclosing or suggesting all the features recited in independent claim 18. However, as noted during the telephone interview conducted on October 15, 2008, Ohashi fails to disclose or suggest at least the following features of the claimed speaker device:

- 1 a first magnetic circuit disposed inside a housing and having a first magnet provided on a surface thereof facing the opening portion, and a first yoke provided lateral to the first magnet;
- 2 a second magnetic circuit having a second magnet disposed facing the first magnet of the first magnetic circuit via a first magnetic gap, and a second yoke provided lateral to the second magnet; and
- 3 a magnetic member made of a magnetic material other than a magnet, and connected directly or indirectly to a first voice coil bobbin, and disposed in the first magnetic gap between the first magnet of the first magnetic circuit and the second magnet of the second magnetic circuit.

Conversely, Ohashi discloses a speaker device which reproduces a sound of 20 kHz or more. Specifically, the speaker device is constructed such that signal current is supplied to the primary coil 15 provided on the pole piece 12a, and induced current flows through the secondary coil 18 disposed opposite to the primary coil 15. The parameters of the primary coil 15 and the secondary coil 18 are adjusted in order to reproduce a sound of 20 kHz or more.

However, as noted during the October 15th telephone interview, the speaker device in

Ohashi clearly has only one magnet 11 having a continuous doughnut shape, and one magnetic circuit that includes the magnet 11. Accordingly, Ohashi fails to disclose or suggest a second magnet or a second magnetic circuit. Additionally, nowhere does Ohashi disclose or suggest a magnetic member connected directly or indirectly to a first voice coil bobbin and disposed in a first magnetic gap between the first magnet of the first magnetic circuit and the second magnet of the second magnetic circuit.

Based on the above discussion, independent claim 18 is not anticipated or rendered obvious by Ohashi. Additionally, claims 19-28 and 35 are not anticipated or rendered obvious by Ohashi at least by virtue of their dependency from independent claim 18.

In the Office Action, claims 29, 33 and 34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi; claim 30 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi in view of Dijkstra et al. (U.S. Patent No. 4,607,382, hereafter “Dijkstra”); and claim 31 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi in view of Dijkstra, and further in view of Proni (U.S. Patent No. 6,501,884, hereafter “Proni”).

Claims 29-31, 33 and 34 depend from independent claim 18. As noted above, Ohashi fails to disclose or suggest all the features recited independent claim 18. Additionally, after detailed review of Dijkstra and Proni, the references fail to overcome the deficiencies noted above in Ohashi.

Specifically, Dijkstra merely discloses a speaker device which reduces a resonant frequency by using mechanical springs (9, 10) with negative spring stiffness, detects a position of a diaphragm, and controls an average position of the diaphragm based on the detected position. Additionally, Proni only discloses a method of assembling a speaker device, in which a misalignment of a voice coil in a magnetic gap is eliminated.

Accordingly, no combination of Ohashi, Dijkstra and Proni would result in, or otherwise render obvious, the features of claims 29-31, 33 and 34 at least by virtue of their dependency from independent claim 18.

In light of the above, the Applicants respectfully submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner

withdraw the rejections presented in the Office Action dated August 29, 2007, and pass this application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

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